



# Utah Water Supply Outlook Report

April 1, 2003



Ray Wilson Measures 15% of average at the Lost Creek Snow Course  
March 27, 2003

Photo by Timothy Bardsley, Snow survey, NRCS, USDA

# Water Supply Outlook Reports and Federal - State - Private Cooperative Snow Surveys

---

*For more water supply and resource management information, contact:*

Vane O. Campbell, Area Conservationist, 340 N. 600 E., Richfield, UT 84701 - Phone: (435) 896-6441  
Todd C. Nielson, Area Conservationist, 302 E. 1860 S., Provo, UT 84606 - Phone: (801) 377-5580  
David M. Webster, Area Conservationist, 80 N. 500 W., Vernal, UT 84078 - Phone: (435) 789-2100  
Snow Survey Staff, 245 N Jimmy Doolittle Rd, SLC Utah, 84041 - Phone: (801) 524-5213  
Internet Address: <http://www.ut.nrcs.usda.gov/snow/>

---

## *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

---

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326 W, Whitten Building, 14th and Independence Ave., SW, Washington, D.C., 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

# **STATE OF UTAH GENERAL OUTLOOK**

**Apr 1, 2003**

## **SUMMARY**

April 1 is the typical peak for snowpacks in Utah. This April marks the fifth consecutive year of below normal peak snowpacks across the state. In those five years, some areas at various times had extremely low snowpacks and at times they were a little closer to average, but all fell short of the 30 year normal. One of the characteristics of drought is persistence and this one, like a bad cold, just keeps hanging around. Historically, (for the period of snow record) general droughts that affect the entire state or even specific watersheds for this long are rare. March was another average month, very similar to February. Snowpacks at this peak time are about 60% to 75% of average in northern Utah and the Uintah Basin. In southern Utah, snowpacks range from 54% on the Virgin to 77% on the Sevier and southeastern Utah. This is a much improved situation from January, but still a rather bleak picture for snowmelt runoff this spring and summer. In the north, snowpacks are less (10% to 30%) than they were last year. In the south, they are substantially more (150% to 225%) than last year. However, all Utah snowpacks remain below to much below average. Low elevation snowpacks are still much below average and will most likely melt early. Soil moisture condition remains in relatively good shape over most of the state that is currently monitored. This should improve snowmelt runoff efficiency over what we have seen the past few years, where much of the snowpack has been lost to soil moisture replacement. Precipitation for March was near normal in northern Utah (86%-103%), in the southeast it was above average but on the Virgin, it below average. This brings the statewide seasonal precipitation, (Oct-Mar) to 77%. Reservoir storage in 41 major reservoirs across the state is at 53% of capacity, down 550,000 acre feet from last year, out of a total capacity of 5, 470,000, or about 10 %. Reservoir storage is down 1,200,000 acre feet (22%) from 2001 levels, reflecting the persistent nature of this drought. Some larger reservoirs, such as Bear Lake and Utah Lake would take several years of at least average runoff to fill to capacity. Water supply conditions are below to much below normal.

## **SNOWPACK**

March first snowpacks as measured by the NRCS SNOTEL system range from 54% to 77% of average in southern Utah. Southeast Utah and the Sevier have the highest snowpacks at 77% of average and southwest Utah has the lowest at 54% of average. In northern Utah, snowpacks range from a low of 60% on the Weber to 73% on the Uintah Basin. Low elevation snowpacks are very low this year and, in some cases, stations are already reading zero. This could have a negative impact on streamflow. Statewide, snowpacks are at 68% of average, very similar to last year.

## **PRECIPITATION**

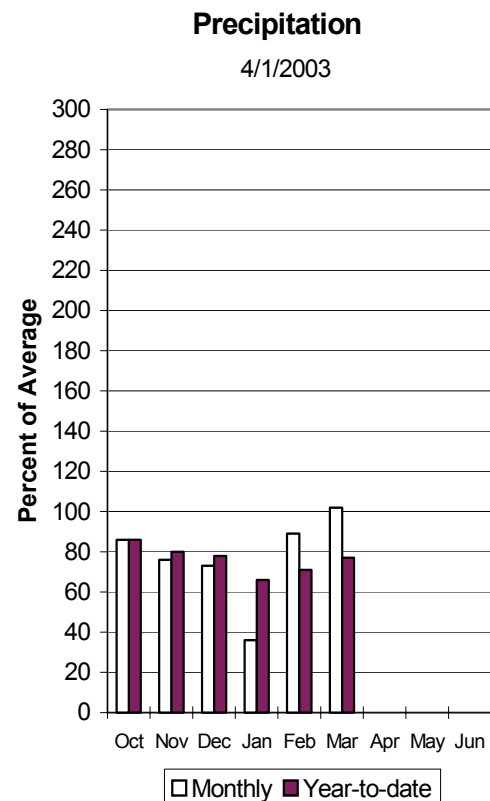
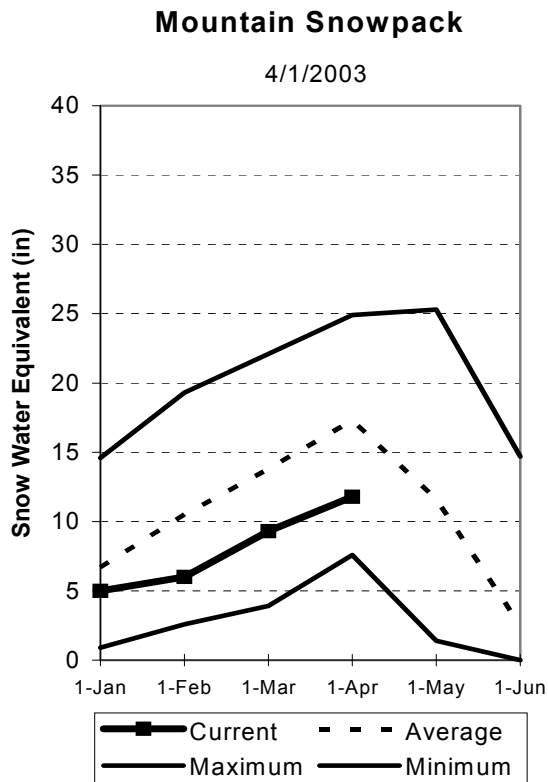
Mountain precipitation during March was below to near normal (86%-103%) in the north and below to above normal (81%-124%) in southern Utah. This brings the seasonal accumulation (Oct-Jan) to 77% of average statewide.

## **RESERVOIRS**

Storage in 41 of Utah's key irrigation reservoirs is at 53% of capacity. This is down substantially from last year indicating heavy use of reservoir storage to make up the streamflow deficit. Most reservoir operators are utilizing a conservative strategy, storing as much water as possible.

## STREAMFLOW

Snowmelt streamflows are expected to be below to much below average across the entire state of Utah this year. Low snowpacks tend to melt earlier and produce proportionately less runoff. Streams may peak early, have significantly less volume and have short recessions back to base flow. Overall water supply conditions are below normal.

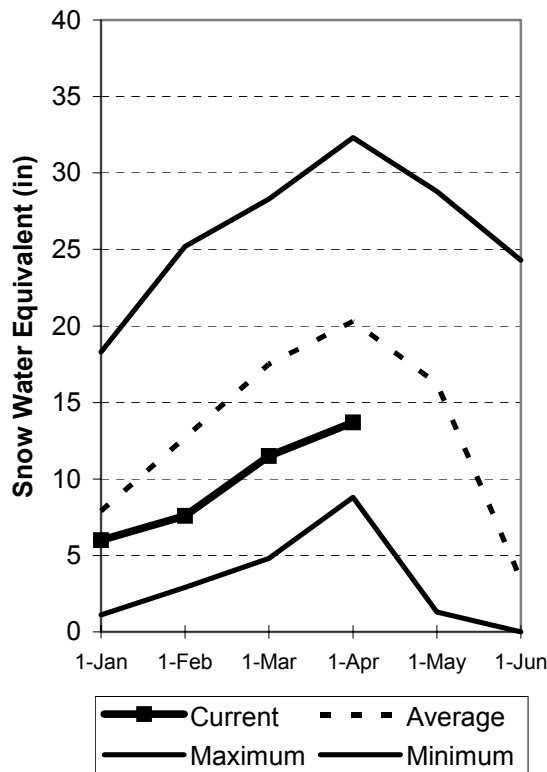


## Bear River Basin Apr 1, 2003

Snowpacks on the Bear River Basin are much below average at 67% of normal, about 92% of last year and down 1% relative to last month. Water supply conditions are similar to last year. Specific sites range from 0% to 102% of normal. This is the sixth consecutive below normal April 1 snowpack for this watershed. Soil moisture conditions are somewhat improved from last year and may offer higher runoff efficiency. March precipitation was slightly below average at 86%, which brings the seasonal accumulation (Oct-Mar) to 69% of average. Forecast streamflows are for much below normal volumes this spring. Reservoir storage is at 29% of capacity, 14% (211,000 AF) less than last year. Water supply conditions are much below normal due to low snowpack and low reservoir storage.

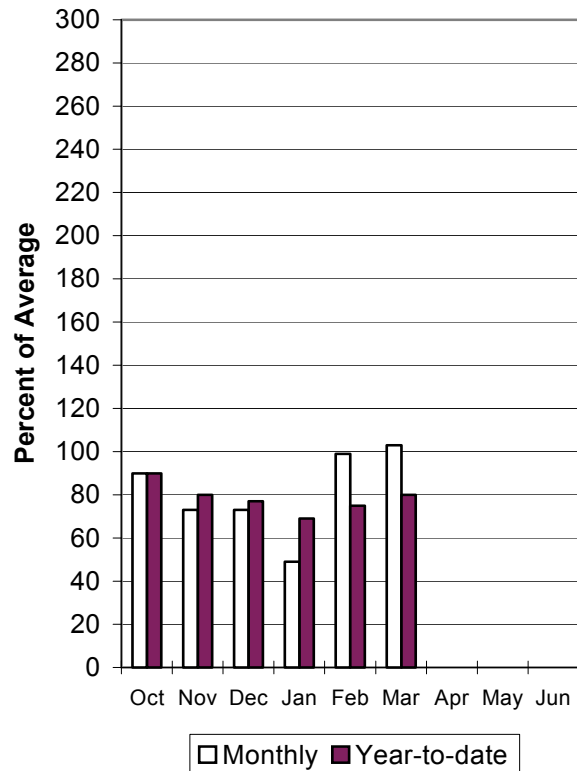
### Bear River Snowpack

4/1/2003



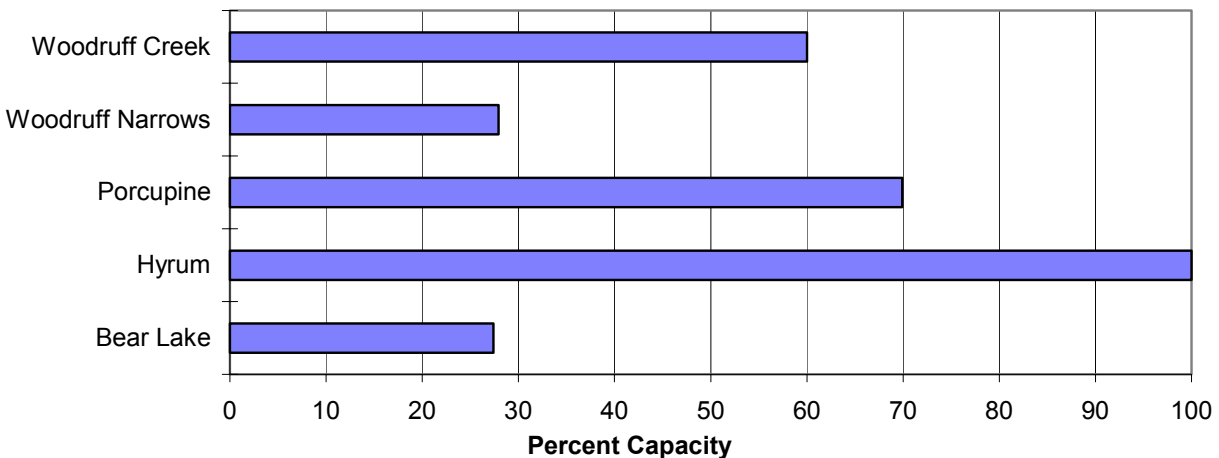
### Bear River Precipitation

4/1/2003



### Reservoir Storage

4/1/2003



BEAR RIVER BASIN  
Streamflow Forecasts - April 1, 2003

		<<===== Drier ===== Future Conditions ===== Wetter =====>>							
Forecast Point	Forecast Period			Chance Of Exceeding *				30-Yr Avg. (1000AF)	
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
Bear R nr UT-WY State Line	APR-JUL	55	64	70	60	77	89	116	
Woodruff Narrows Res inflow	APR-JUL	28	42	53	39	65	86	136	
Big Creek nr Randolph	APR-JUL	0.52	1.40	2.00	41	3.46	5.62	4.90	
Smiths Fork nr Border	APR-JUL	46	56	63	61	71	86	103	
Bear River blw Stewart Dam	APR-JUL	14.0	69	106	37	143	198	288	
Little Bear River at Paradise	APR-JUL	10.2	12.6	14.5	32	16.7	21	46	
Logan River nr Logan	APR-JUL	57	64	69	57	74	83	122	
Blacksmith Fork nr Hyrum	APR-JUL	16.7	18.6	20	42	22	24	48	

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of March					BEAR RIVER BASIN Watershed Snowpack Analysis - April 1, 2003			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BEAR LAKE	1421.0	389.1	605.5	923.8	BEAR RIVER, UPPER (abv Ha	6	94	69
HYRUM	15.3	15.3	14.8	12.2	BEAR RIVER, LOWER (blw Ha	8	92	66
PORCUPINE	11.3	7.9	11.3	6.7	LOGAN RIVER	4	94	70
WOODRUFF NARROWS	57.3	16.0	9.3	32.7	RAFT RIVER	1	52	57
WOODRUFF CREEK	4.0	2.4	2.3	---	BEAR RIVER BASIN	14	93	67

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.



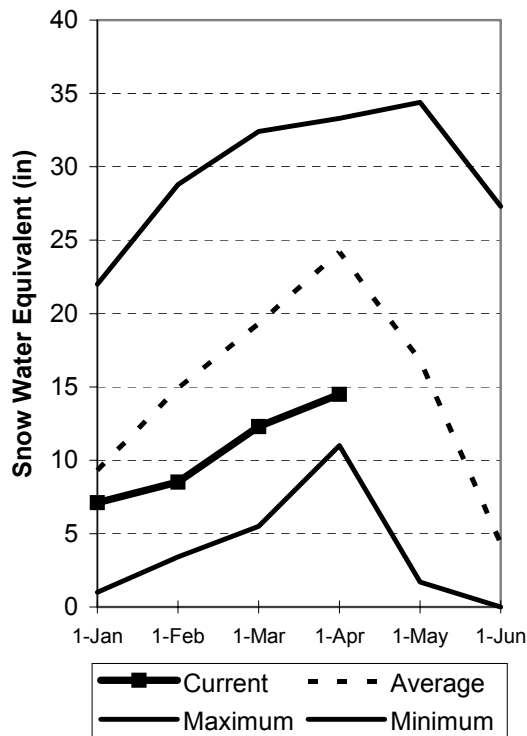
# Weber and Ogden River Basins

Apr 1, 2003

Snowpack on the Weber and Ogden Watersheds is much below normal at 60% of average, about 73% of last year and down 2% relative to last month. This is the lowest March 1 snowpack since 1992. Individual sites range from 15% to 93% of average. This is the fifth consecutive year of below normal April 1 snowpack for this watershed. Soil moisture conditions are somewhat improved from last year and may yield a higher runoff efficiency. Precipitation during March was slightly below normal at 86%, bringing the seasonal accumulation (Oct-Mar) to 69% of average. Reservoir storage is at 55% of capacity, about the same as last year. Streamflow forecasts are much below average. Overall water supply conditions are much below normal due to poor snowpack and low reservoir storage.

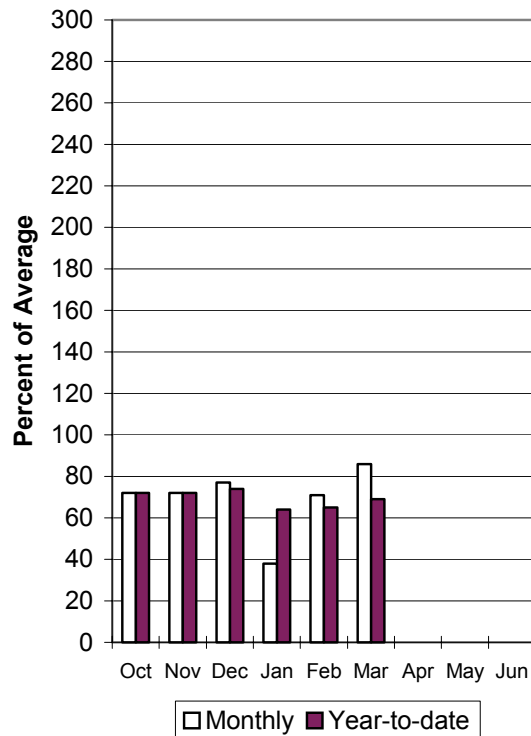
## Weber River Snowpack

4/1/2003



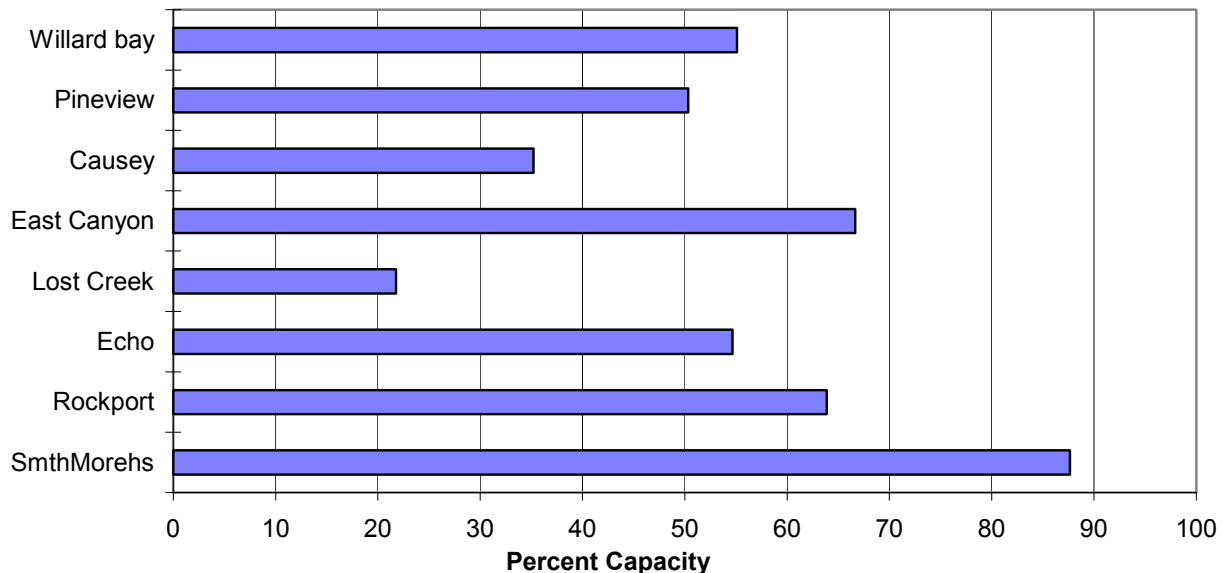
## Weber River Precipitation

4/1/2003



## Reservoir Storage

4/1/2003



WEBER & OGDEN WATERSHEDS in Utah  
Streamflow Forecasts - April 1, 2003

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Smith & Morehouse Res inflow	APR-JUL	12.8	17.0	20	59	23	27	34
Weber River nr Oakley	APR-JUL	44	59	70	57	81	96	123
Rockport Reservoir inflow	APR-JUL	39	59	72	54	85	105	134
Weber River nr Coalville	APR-JUL	37	58	72	53	86	107	137
Chalk Creek at Coalville	APR-JUL	5.5	15.9	23	51	30	40	45
Echo Reservoir inflow	APR-JUL	48	77	97	54	117	146	179
Lost Creek Reservoir inflow	APR-JUL	1.9	3.7	5.3	30	7.2	10.4	17.6
East Canyon Reservoir inflow	APR-JUL	5.7	8.5	10.7	35	13.2	17.3	31
Weber River at Gateway	APR-JUL	49	107	146	41	185	245	355
SF Ogden River nr Huntsville	APR-JUL	5.5	15.9	23	36	30	40	64
Pineview Reservoir inflow	APR-JUL	11.0	31	44	33	57	77	133
Wheeler Creek nr Huntsville	APR-JUL	1.87	2.80	3.40	54	4.00	4.90	6.30

WEBER & OGDEN WATERSHEDS in Utah  
Reservoir Storage (1000 AF) - End of March

WEBER & OGDEN WATERSHEDS in Utah  
Watershed Snowpack Analysis - April 1, 2003

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CAUSEY	7.1	2.5	2.9	2.6	OGDEN RIVER	4	66	50
EAST CANYON	49.5	33.0	29.0	36.5	WEBER RIVER	9	74	65
ECHO	73.9	40.4	42.4	51.5	WEBER & OGDEN WATERSHEDS	13	72	60
LOST CREEK	22.5	4.9	7.5	14.1				
PINEVIEW	110.1	55.4	59.9	61.7				
ROCKPORT	60.9	38.9	26.6	35.1				
WILLARD BAY	215.0	118.5	109.2	160.9				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

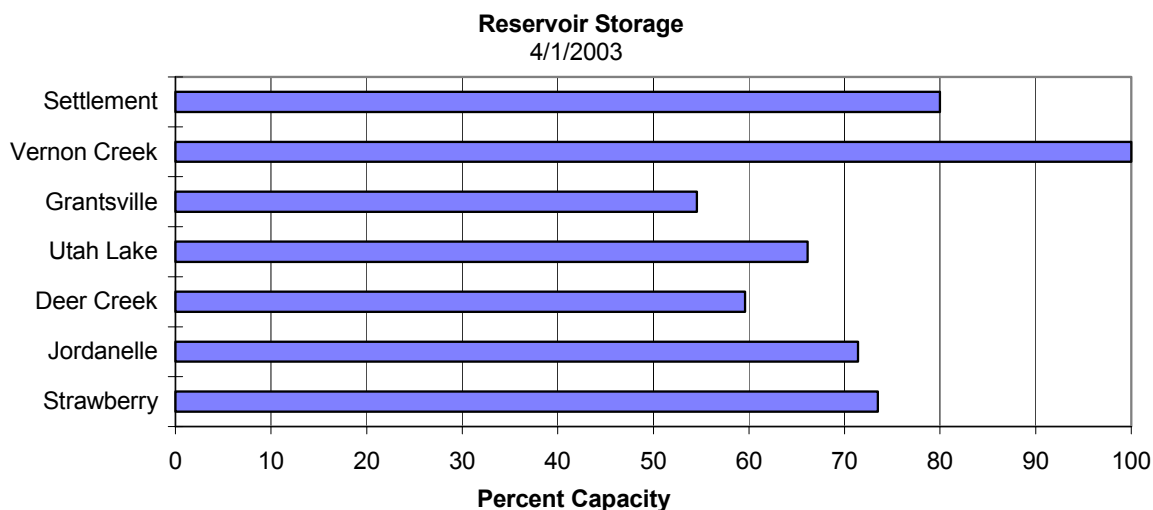
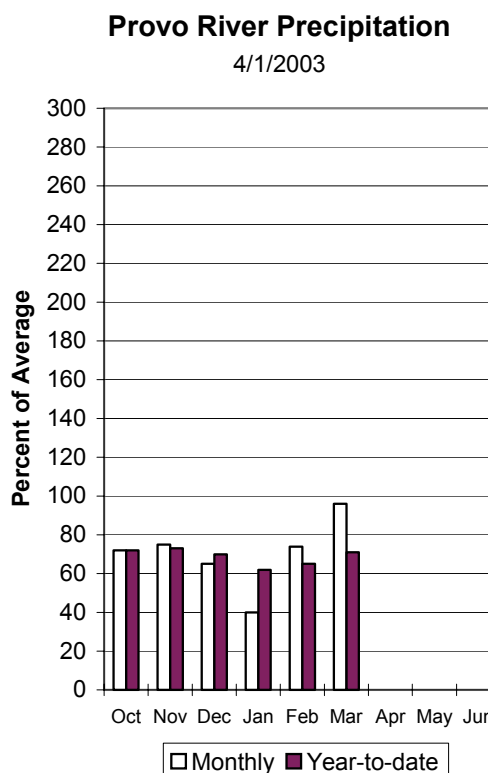
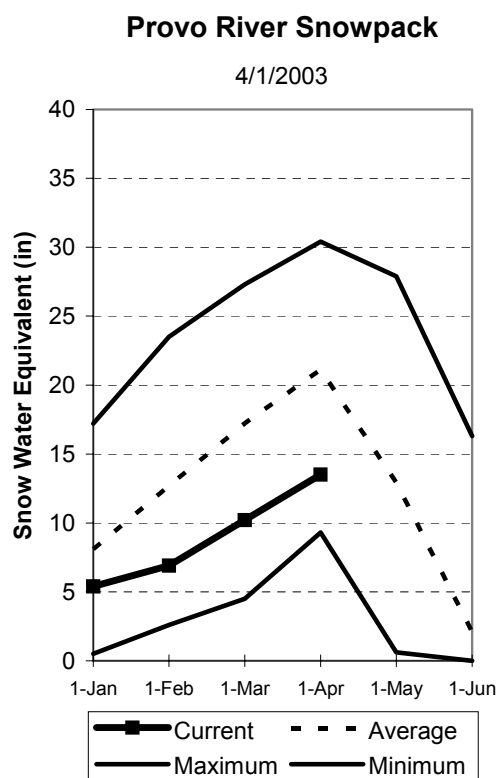
(2) - The value is natural volume - actual volume may be affected by upstream water management.



## Utah Lake, Jordan River & Tooele Valley Basins

### Apr 1, 2003

Snowpacks over these watersheds are at 64% of average, 79% of last year and up 5% relative to last month. Individual sites range from 38% to 86% of average. This is the third consecutive year of below normal April 1 snowpack on these watersheds. Soil moisture is somewhat improved from last year and may yield a higher runoff efficiency. Precipitation during March was near normal at 96%, bringing the seasonal accumulation (Oct-Mar) to 71% of average. Forecast streamflows are much below normal. Reservoir storage is at 70% of capacity, 8% (196,000 AF) less than last year. General water supply conditions are poor due to low snowpack and low reservoir storage.



UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Streamflow Forecasts - April 1, 2003

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions =====		===== Wetter =====>>		30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Spanish Fork River nr Castilla	APR-JUL	6.2	14.2	34	44	54	74	77
Provo River nr Woodland	APR-JUL	25	40	52	51	64	79	103
Provo River nr Hailstone	APR-JUL	12.0	34	48	44	62	84	109
Provo R blw Deer Creek Dam	APR-JUL	11.0	43	63	50	83	113	126
American Fk R nr American Fk	APR-JUL	4.0	8.2	11.0	34	13.8	17.6	32
Utah Lake inflow	APR-JUL	6.0	90	143	44	196	280	325
Little Cottonwood Ck nr SLC	APR-JUL	14.0	17.2	20	50	23	26	40
Big Cottonwood Ck nr SLC	APR-JUL	8.7	14.6	18.0	47	21	25	38
Mill Creek nr SLC	APR-JUL	0.98	1.33	2.40	34	3.47	5.00	7.00
Parley's Creek nr SLC	APR-JUL	1.0	2.7	5.8	35	8.9	12.9	16.7
Dell Fork nr SLC	APR-JUL	0.00	0.94	2.40	35	3.86	6.00	6.80
Emigration Creek nr SLC	APR-JUL	0.00	0.10	1.30	29	2.50	4.10	4.50
City Creek nr SLC	APR-JUL	1.13	1.82	3.20	37	4.58	6.30	8.70
Vernon Creek nr Vernon	APR-JUL	0.30	0.41	0.51	35	0.63	0.86	1.48
Settlement Creek nr Tooele	APR-JUL	0.31	0.55	0.80	41	1.17	2.06	1.97
S Willow Ck nr Grantsville	APR-JUL	0.54	1.09	1.46	46	2.27	3.46	3.20

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Reservoir Storage (1000 AF) - End of March

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY  
Watershed Snowpack Analysis - April 1, 2003

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DEER CREEK	149.7	89.2	103.2	113.0	PROVO RIVER & UTAH LAKE	7	98	63
GRANTSVILLE	3.3	1.8	2.0	2.7	PROVO RIVER	4	83	54
SETTLEMENT CREEK	1.0	0.8	0.8	0.7	JORDAN RIVER & GREAT SALT	6	66	67
STRAWBERRY-ENLARGED	1105.9	812.6	898.4	648.8	TOOELE VALLEY WATERSHEDS	3	84	58
UTAH LAKE	870.9	576.0	668.8	855.8	UTAH LAKE, JORDAN RIVER &	16	78	64
VERNON CREEK	0.6	0.6	0.6	---				

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural volume - actual volume may be affected by upstream water management.

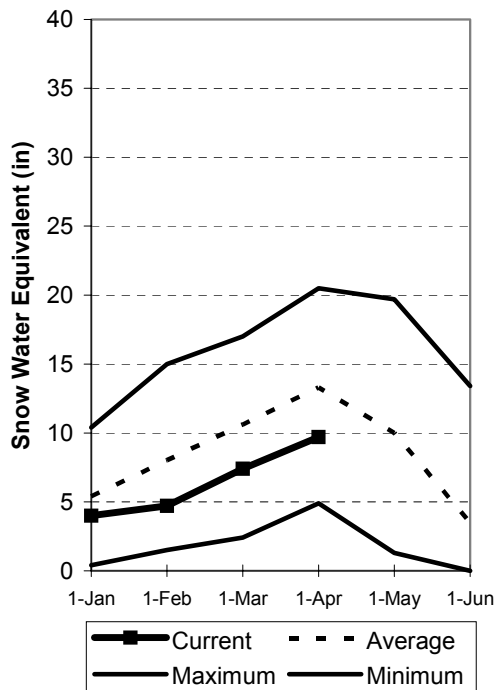
# 

Apr 1, 2003

Snowpacks across the Uintah Basin and North Slope areas are much below average at 73%, which is 118% of last year's snowpack and up 5% relative to last month. The North Slope ranges from 76% to 107% and the Uintah Basin ranges from 29% to 85% of average. This is the fifth consecutive below normal April 1 snowpack in the Uintah Basin. Soil moisture is somewhat improved over last year and may yield a higher runoff efficiency. Precipitation during March was near normal at 98%, bringing the seasonal accumulation (Oct-Mar) to 74% of average. Reservoir storage is at 74% of capacity, 9% (124,000AF) less than last year. Springtime runoff conditions are much below normal due to low snowpack and low reservoir storage.

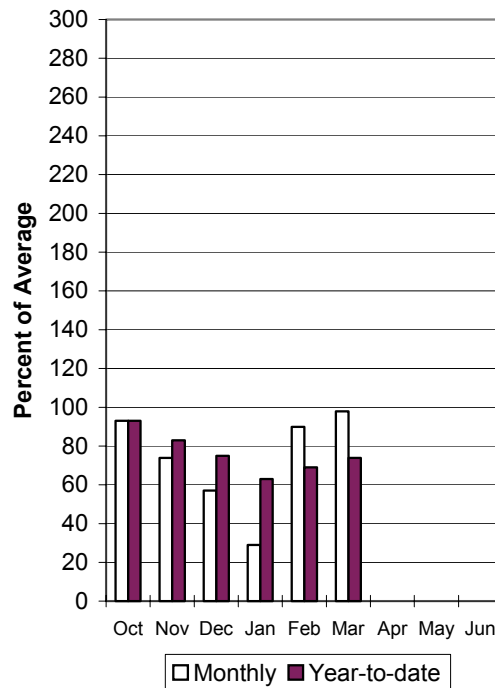
### 

4/1/2003



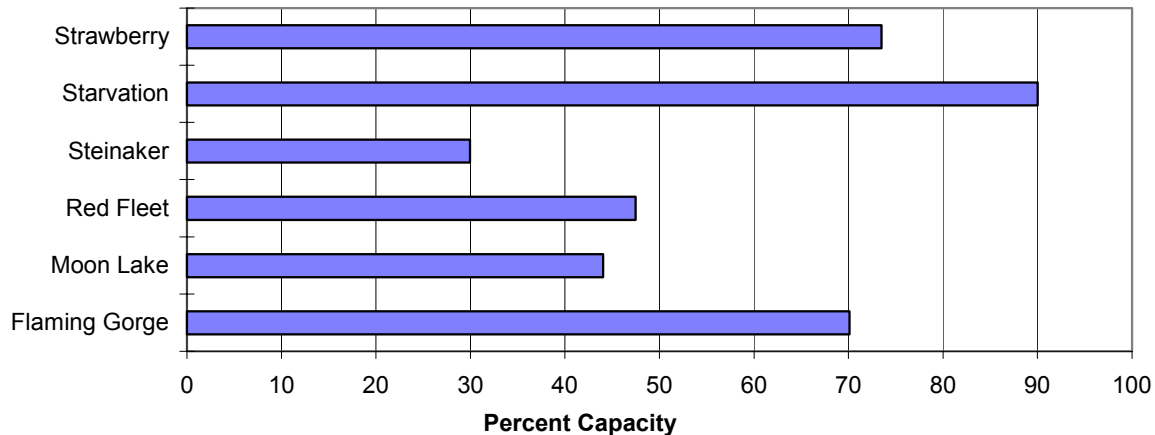
### 

4/1/2003



### 

4/1/2003



UINTAH BASIN & DAGGET SCD'S  
Streamflow Forecasts - April 1, 2003

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions =====		===== Wetter =====>>		30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Blacks Fork nr Robertson	APR-JUL	39	53	62	65	71	85	95
EF of Smiths Fork nr Robertson	APR-JUL	14.9	17.1	18.8	61	21	24	31
Flaming Gorge Reservoir Inflow	APR-JUL	510	690	810	68	935	1115	1190
BIG BRUSH CK abv Red Fleet Resv	APR-JUL	9.8	13.8	16.5	79	19.2	24	21
Ashley Creek nr Vernal	APR-JUL	19.4	29	36	69	43	53	52
WF DUCHESNE RIVER nr Hanna	APR-JUL	5.5	8.6	11.0	46	13.7	18.3	24
DUCHESNE R nr Tabiona	APR-JUL	32	45	54	51	63	76	105
UPPER STILLWATER RESV inflow	APR-JUL	28	40	49	60	58	70	82
ROCK CK nr Mountain Home	APR-JUL	32	43	51	57	59	70	89
DUCHESNE R abv Knight Diversion	APR-JUL	46	77	98	52	119	150	188
STRAWBERRY RES nr Soldier Springs	APR-JUL	11.9	18.6	24	41	30	40	59
CURRANT CREEK RESV Inflow	APR-JUL	2.6	6.1	8.5	34	10.9	14.4	25
STARVATION RESERVOIR inflow	APR-JUL	11.0	34	49	41	64	87	121
Lake Fork River abv Moon Lake	APR-JUL	24	34	40	59	46	56	68
Yellowstone River nr Altonah	APR-JUL	17.0	28	36	58	44	55	62
DUCHESNE R at Myton	APR-JUL	18.0	37	78	30	119	179	260
Whiterocks River nr Whiterocks	APR-JUL	16.3	28	35	63	43	54	56
DUCHESNE R nr Randlett	APR-JUL	19.0	49	100	31	196	338	325

UINTAH BASIN & DAGGET SCD'S  
Reservoir Storage (1000 AF) - End of March

UINTAH BASIN & DAGGET SCD'S  
Watershed Snowpack Analysis - April 1, 2003

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
FLAMING GORGE	3749.0	2629.0	2828.5	2920.0	UPPER GREEN RIVER in UTAH	6	129	88
MOON LAKE	49.5	21.8	16.2	30.8	ASHLEY CREEK	2	146	88
RED FLEET	25.7	12.2	19.2	18.8	BLACK'S FORK RIVER	2	113	83
STEINAKER	33.4	10.0	20.9	24.2	SHEEP CREEK	1	128	90
STARVATION	165.3	148.8	166.7	138.6	DUCHESNE RIVER	11	112	67
STRAWBERRY-ENLARGED	1105.9	812.6	898.4	648.8	LAKE FORK-YELLOWSTONE CRE	4	114	67
					STRAWBERRY RIVER	4	107	59
					UINTAH-WHITEROCKS RIVERS	2	108	76
					UINTAH BASIN & DAGGET SCD	17	118	73

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

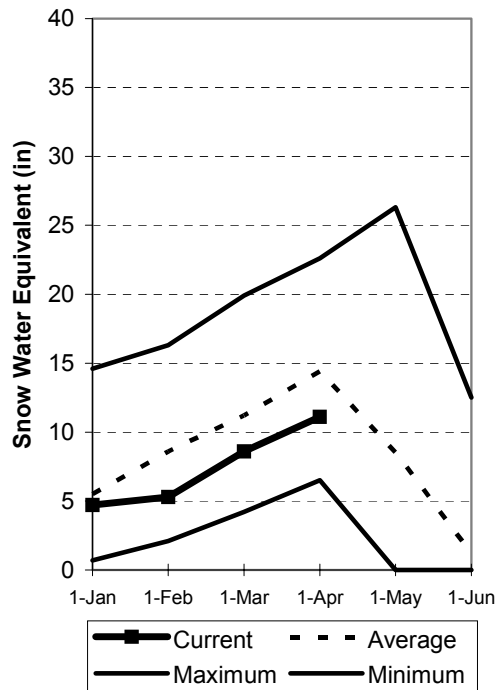
# Carbon, Emery, Wayne, Grand and San Juan Co.

Apr 1, 2003

Snowpacks in this region are below normal at 77% of average, about 143% of last year and up 5% relative to last month. Individual sites range from 64% to 107% of average. This is sixth consecutive below normal April 1 snowpack for this region. Soil moisture is somewhat improved over last year and may yield a higher runoff efficiency. Precipitation during March was slightly above average at 114%, bringing the seasonal accumulation (Oct-Mar) to 84% of normal. Reservoir storage is at 38% of capacity, 16% (24,000AF) less than last year. General runoff and water supply conditions are much below normal due to low snowpack and low reservoir storage.

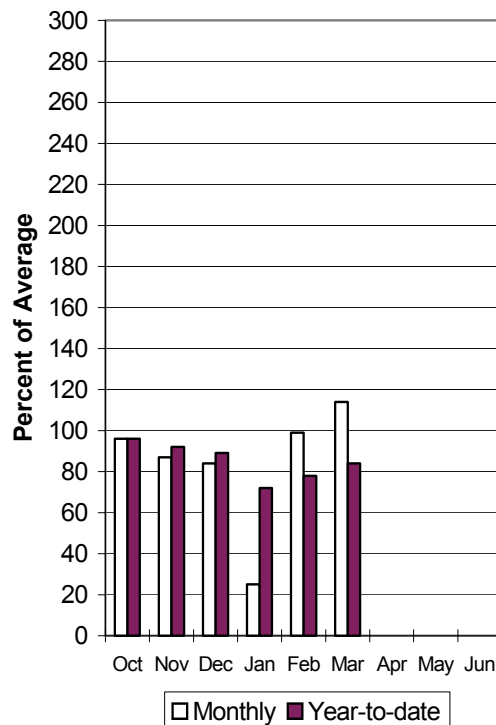
## Southeast Utah Snowpack

4/1/2003



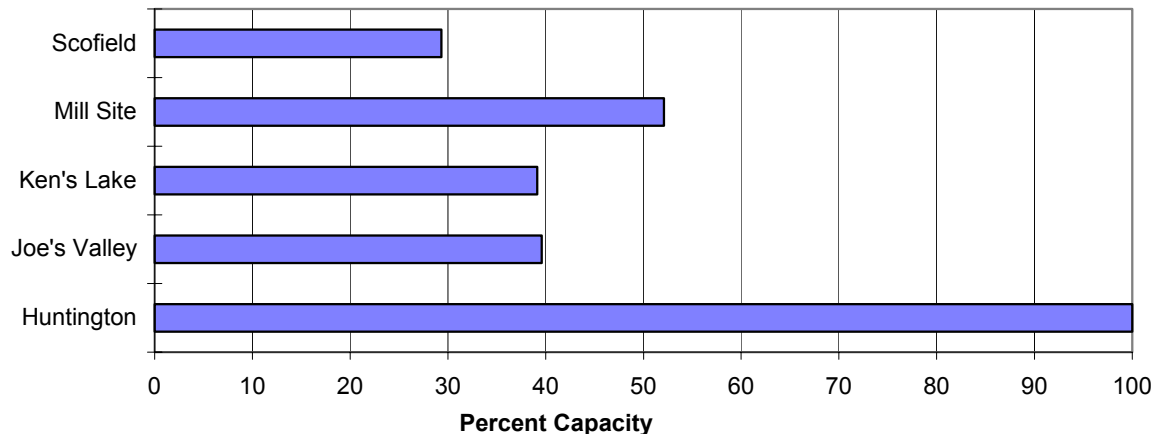
## Southeast Utah Precipitation

4/1/2003



## Reservoir Storage

4/1/2003



(2) - The value is natural volume - actual volume may be affected by upstream water management.

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Streamflow Forecasts - April 1, 2003

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Gooseberry Creek nr Scofield	APR-JUL	5.0	6.7	7.8	66	8.9	10.6	11.9
Scofield Reservoir inflow	APR-JUL	24	29	32	70	35	40	46
White River blw Tabbayne Creek	APR-JUL	5.1	7.6	9.6	55	11.8	15.5	17.4
Green River at Green River, UT	APR-JUL	1120	1730	2150	68	2570	3180	3170
Electric Lake inflow	APR-JUL	7.2	9.1	10.6	68	12.2	14.9	15.7
HUNTINGTON CK nr Huntington	APR-JUL	23	29	32	64	36	41	50
JOE'S VALLEY RESV Inflow	APR-JUL	16.7	27	34	59	41	51	58
Ferron Creek nr Ferron	APR-JUL	18.9	23	26	67	29	34	39
Colorado River nr Cisco	APR-JUL	2310	3080	3600	77	4120	4890	4650
Mill Creek at Sheley Tunnel nr Moab	APR-JUL	1.50	3.00	4.00	80	5.00	6.50	5.00
Seven Mile Creek nr Fish Lake	APR-JUL	3.10	5.30	6.80	97	8.30	10.50	7.00
Muddy Creek nr Emery	APR-JUL	7.5	11.4	14.0	70	16.6	20	19.9
North Ck ab R.S. nr Monticello	MAR-JUL	0.01	0.34	0.83	62	1.54	2.98	1.35
South Ck ab Lloyd's Res nr Monticell	MAR-JUL	0.23	0.53	0.80	61	1.12	1.70	1.31
Recapture Ck bl Johnson Ck nr Blandi	MAR-JUL	0.30	1.92	3.40	56	4.90	7.10	6.10
San Juan River nr Bluff	APR-JUL	215	430	580	47	730	945	1230

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Reservoir Storage (1000 AF) - End of March

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.  
Watershed Snowpack Analysis - April 1, 2003

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HUNTINGTON NORTH	4.2	4.2	3.6	3.9	PRICE RIVER	3	122	75
JOE'S VALLEY	61.6	24.4	37.9	41.4	SAN RAFAEL RIVER	3	109	74
KEN'S LAKE	2.3	0.9	1.1	1.4	MUDDY CREEK	1	131	74
MILL SITE	16.7	8.7	8.4	86.2	FREMONT RIVER	3	199	85
SCOFIELD	65.8	19.3	30.0	34.7	LASAL MOUNTAINS	1	226	79
					BLUE MOUNTAINS	1	384	87
					WILLOW CREEK	1	189	64
					CARBON, EMERY, WAYNE, GRA	13	143	77

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

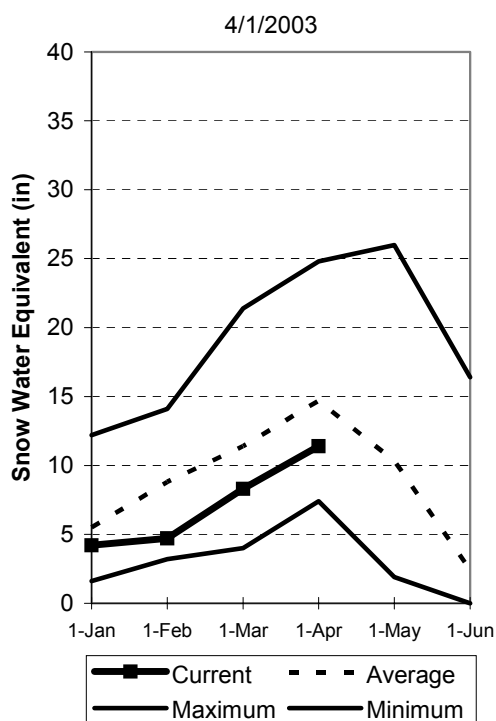
(2) - The value is natural volume - actual volume may be affected by upstream water management.

## Sevier and Beaver River Basins

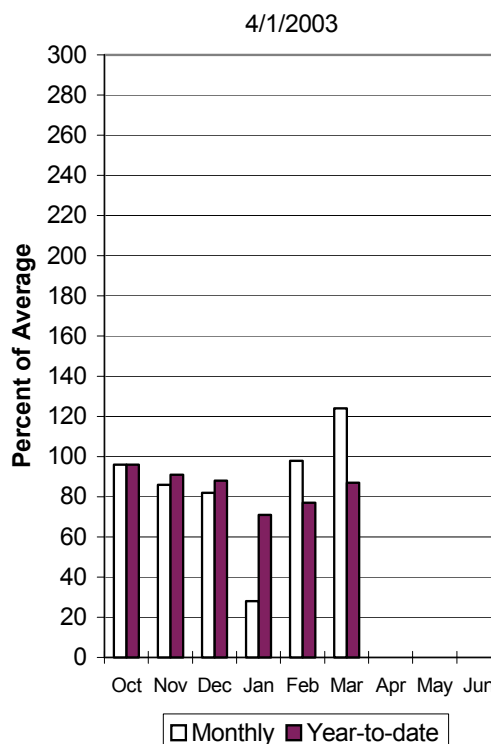
### Apr 1, 2003

Snowpacks on the Sevier River Basin are below normal at 77% of average, about 156% of last year and up 9% relative to last month. Individual sites range from 0% to 123% of average. This is the fifth consecutive below normal April 1 snowpack year for the Sevier. The lack of low elevation snow may impact runoff. Soil moisture is somewhat improved over last year and may yield a higher runoff efficiency. Precipitation during March was above average at 124% of normal, bringing the seasonal accumulation (Oct-Mar) to 87% of average. Reservoir storage is at 34% of capacity, 27% (109,000AF) less than last year. Water supply conditions and streamflow forecasts are much below normal due to low snowpack and low reservoir storage.

#### Sevier River Snowpack

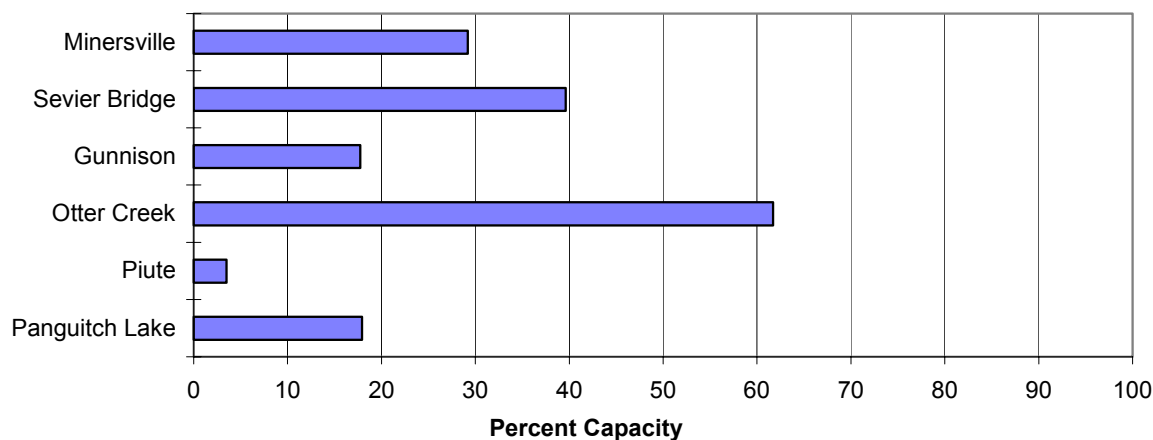


#### Sevier River Precipitation



#### Reservoir Storage

4/1/2003





SEVIER & BEAVER RIVER BASINS  
Streamflow Forecasts - April 1, 2003

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Sevier River at Hatch	APR-JUL	11.0	23	29	53	35	47	55
Sevier River nr Kingston	APR-JUL	16.9	39	45	51	51	73	89
EF Sevier R nr Kingston	APR-JUL	1.1	13.2	21	55	29	41	38
Sevier R blw Piute Dam	APR-JUL	5.0	37	58	46	79	111	126
Clear Creek nr Sevier	APR-JUL	4.0	10.6	14.0	64	17.4	24	22
Salina Creek at Salina	APR-JUL			7.4	38			19.7
Sevier R nr Gunnison	APR-JUL	56	92	123	44	197	325	280
Chicken Creek nr Levan	APR-JUL	1.00	1.27	1.50	33	1.77	2.25	4.50
Oak Creek nr Oak City	APR-JUL	0.53	0.67	0.79	49	0.93	1.18	1.63
Beaver River nr Beaver	APR-JUL	12.3	14.4	16.0	62	17.8	21	26
Minersville Reservoir inflow	APR-JUL	7.0	7.9	8.5	51	9.2	10.3	16.6

SEVIER & BEAVER RIVER BASINS  
Reservoir Storage (1000 AF) - End of March

SEVIER & BEAVER RIVER BASINS  
Watershed Snowpack Analysis - April 1, 2003

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNNISON	20.3	3.6	6.3	16.3	UPPER SEVIER RIVER (south	8	192	65
MINERSVILLE (RkyFd)	23.3	6.8	10.0	17.9	EAST FORK SEVIER RIVER	3	216	71
OTTER CREEK	52.5	32.4	41.8	43.5	SOUTH FORK SEVIER RIVER	5	177	62
PIUTE	71.8	2.5	50.1	58.5	LOWER SEVIER RIVER (inclu	6	137	88
SEVIER BRIDGE	236.0	93.5	134.9	189.7	BEAVER RIVER	2	174	80
PANGUITCH LAKE	22.3	4.0	11.9	152.9	SEVIER & BEAVER RIVER BAS	16	159	77

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

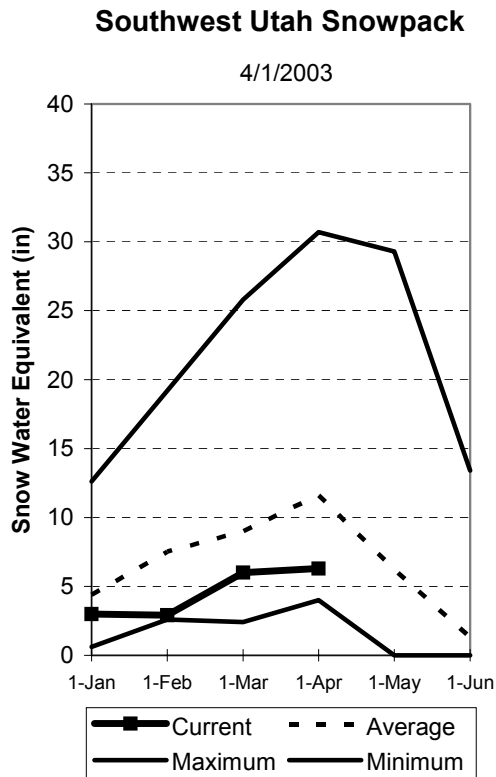
The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.

## E. Garfield, Kane, Washington, & Iron co.

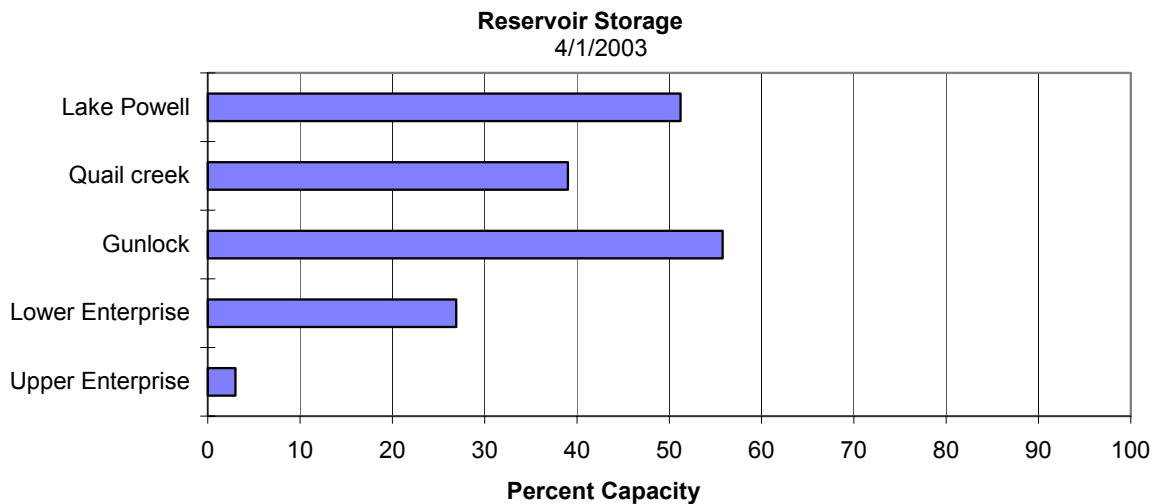
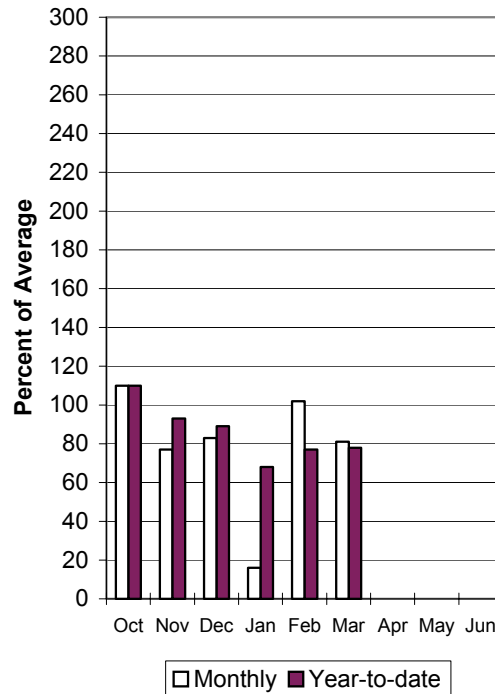
Apr 1, 2003

Snowpacks in this region are at 54% of average, about 226% of last year and down 5% relative to last month. Individual sites range from 0 to 107% of average and it is the second consecutive below normal April 1 snowpack year. Snowmelt may last only through mid to late May in this area. Soil moisture is somewhat improved over last year and may yield a higher runoff efficiency. Precipitation was below normal during March at 81% of average, bringing the seasonal accumulation (Oct-Mar) to 78% of normal. Reservoir storage is at 36% of capacity, 37% (23,000AF) less than last year. General water supply conditions and streamflow forecasts are much below normal.



### Southwest Utah Precipitation

4/1/2003



E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Streamflow Forecasts - April 1, 2003

		Future Conditions							
Forecast Point	Forecast Period	<<===== Drier =====		===== Wetter =====>>				30-Yr Avg. (1000AF)	
		Chance Of Exceeding *							
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
Lake Powell inflow	APR-JUL	2690	4180	5200	66	6220	7710	7930	
Virgin River nr Virgin	APR-JUL	19.2	28	34	53	41	53	64	
Virgin River nr Hurricane	APR-JUL	19.3	25	32	46	39	49	69	
Santa Clara River nr Pine Valley	APR-JUL	0.88	1.60	2.20	40	2.90	4.11	5.50	
Coal Creek nr Cedar City	APR-JUL	4.2	6.5	8.4	44	10.5	14.1	19.3	

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Reservoir Storage (1000 AF) - End of March

E. GARFIELD, KANE, WASHINGTON, & IRON Co.  
Watershed Snowpack Analysis - April 1, 2003

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
GUNLOCK	10.4	5.8	7.3	4.5	VIRGIN RIVER	5	211	51
LAKE POWELL	24322.0	12458.0	16927.0	---	PAROWAN	2	170	65
QUAIL CREEK	40.0	15.6	37.7	31.0	ENTERPRISE TO NEW HARMONY	2	0	0
UPPER ENTERPRISE	10.0	0.3	0.5	---	COAL CREEK	2	255	61
LOWER ENTERPRISE	2.6	0.7	0.3	137.1	ESCALANTE RIVER	2	263	85
					E. GARFIELD, KANE, WASHIN	9	230	54

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.

UTAH SURFACE Snow Surveys Basin or Region	WATER NRCS SWSI/%	SUPPLY USDA Percentile	INDEX Years with Similar SWSI
Bear River	-4	2%	92,93,2002
Ogden River	-3.5	8%	88,77,92,87
Weber River	-3.7	5%	77,92,88,02
Tooele Valley	NA		
Provo	-2.9	15%	62,56,55,59
North Slope	NA		
West Uintah Basin	-0.2	48%	94,88,95,87
East Uintah Basin	-2.9	15%	02,94,92,88
Price River	-2.1	24%	02,59,89,98
San Rafael	-2.3	22%	92,02,81,01
Moab	-2.1	25%	99,81,01,91
Upper Sevier River	-2.43	21%	91,90,02,92
Lower Sevier River	-2.9	16%	91,66,67,92
Beaver River	-3	14%	63,90,72,76
Virgin River	-2.5	20%	89,02,91,96
Snow Surveys 245 N Jimmy Doolittle Rd Salt Lake City, UT			SWSI Scale: -4 to 4 Percentile: 0 - 100%



*Issued by*

**Bruce I. Knight**  
Chief  
Natural Resources Conservation Service  
U.S. Department of Agriculture

*Released by*

**Phillip J. Nelson**  
State Conservationist  
Natural Resources Conservation Service  
Salt Lake City, Utah

*Prepared by*

**Snow Survey Staff**  
**Randall Julander, Supervisor**  
**Ray Wilson, Hydrologist**  
**Timothy Bardsley, Hydrologist**  
**Jennifer Erxleben, Hydrologist**  
**Bob Nault, Hydrologic Technician**  
**Ed Harrelson, Electronics Technician**

YOU MAY OBTAIN THIS PRODUCT AS WELL AS CURENT SNOW, PRECIPITATION,  
TEMPERATURE AND SOIL MOISTURE, RESERVOIR, SURFACE WATER SUPPLY INDEX, AND  
OTHER DATA BY VISITING OUR WEB SITE @:

<http://www.ut.nrcs.usda.gov/snow/>

Snow Survey, NRCS, USDA  
245 North Jimmy Doolittle Road  
Salt Lake City, UT 84116  
(801) 524-5213



# **Utah Water Supply Outlook Report**

**Natural Resources Conservation Service**  
**Salt Lake City, UT**

